

Application No. 09/997,436
Attorney Docket No 2001B110
Response to Office Action of December 23, 2004

REMARKS

Reconsideration of this application is requested. The claims submitted for reconsideration are claims 1-32.

Claims 1, 10, 19 and 29 have been amended, adding the steps of cooling the olefin stream and contacting a formed olefin vapor stream with caustic wash. These steps are described in the specification at page 1, lines 3-5 from the bottom, and page 17, lines 5-7, respectively. Accordingly, no new matter has been introduced.

All of the claims have been rejected under 35 USC 103(a) as obvious over U.S. Patent No. 6,403,854 (Miller), taken together with U.S. Patent No. 4,218,569 (Chase). This rejection is traversed and reconsideration of the amended claims is requested.

Applicants' claimed invention is to a process of removing water and/or oxygenated hydrocarbons from an olefin stream. The method includes providing an olefin, cooling the olefin to form a condensed water containing stream and an olefin vapor stream, contacting the olefin vapor stream with caustic wash to remove carbon dioxide, and contacting the caustic washed olefin stream with a polyol, amine, amide, nitrile, or heterocyclic nitrogen containing compound to remove water and/or hydrocarbon from the olefin stream.

Miller discloses a process of making olefin from oxygenated hydrocarbons. According to the Miller process, oxygenate is contacted with an olefin forming catalyst to form an olefin stream, and the olefin stream is processed to remove water and hydrocarbons. The Miller process includes a step of cooling olefin and separating out an olefin vapor stream. The separated olefin vapor stream is eventually sent to an absorption system to remove oxygenated hydrocarbon from the olefin stream.

The Miller process differs from applicants' claimed invention in that Miller concerns only what is termed conventional absorption processes. The reference does not disclose or suggest that a polyol, amine, amide, nitrile, or heterocyclic nitrogen containing compound could be used to remove water and/or hydrocarbon from the olefin stream.

Miller further differs from the claimed invention in that Miller does not contact a caustic washed olefin stream with a polyol, amine, amide, nitrile, or heterocyclic nitrogen containing compound to remove water and/or hydrocarbon from the olefin stream. Although

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Miller discloses the use of a caustic wash, it is used to wash the olefin stream recovered from the absorption unit. Thus, Miller's process is essentially backward from applicants' process.

Because the Miller process is backward relative to applicants' process, the Miller process will end up sending caustic and additional water to the absorption system. This will not only increase the load to the absorption system, but add undesirable caustic components and likely adversely impact the pH of the absorption system. Miller, therefore, teaches away from applicants' claimed invention.

Chase discloses a process of making an ether from a mixture of isobutylene, isobutane and methanol, and removing methanol from the reaction product. More specifically, the Chase process removes the ether from the reaction product in a two-step manner. The first step includes distilling the product to separate the ether from the methanol and C₄ components. The second step includes removing methanol from a methanol/butane azeotrope using a glycol absorbent.

The Chase reference fails to provide any teaching that would correct the deficiency of the Miller process. Moreover, the Chase process uses the glycol absorbent to split apart a methanol/butane azeotrope. This type of azeotrope does not occur to any extent in the Miller process, because there is insufficient butane in the Miller process to be concerned about azeotrope formation. Even if there were, there is no suggestion that it would be desirable to separate such azeotrope components in the Miller process. It is, therefore, likely that mere distillation and conventional water removal techniques would be sufficient for the Miller process. Accordingly, the combination of the Miller and Chase references fails to suggest applicants' claimed invention.

Having demonstrated that Miller and Chase, taken alone or in combination, fail to disclose or suggest the invention as claimed, this application is in condition for allowance. Accordingly, applicants request early and favorable reconsideration in the form of a Notice of Allowance.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated, since this should expedite the prosecution of the application for all concerned.

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If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response. Please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1712 (Docket #: 2001B110).

Respectfully submitted,



Edward F. Sherer
Attorney for Applicants
Registration No. 29,588

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ExxonMobil Chemical Co.
Law Technology Department
P.O. Box 2149
Baytown, Texas 77522-2149
Phone: 281-834-1298
Fax: 281-834-2495